

**ABSTRACT**

A method of optimizing performance of a well system utilizes a neural network. In a described embodiment, the method includes the step of accumulating data indicative of the performance of the well system in response to variable influencing parameters. The data is used to train a neural network to model an output of the well system in response to the influencing parameters. An output of the neural network may then be input to a valuing model, e.g., to permit optimization of a value of the well system. The optimization process yields a set of prospective influencing parameters which may be incorporated into the well system to maximize its value.

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